MRN 108

eventstatistics

95% confidence bounds for number of events among N individuals when the probability of any one invividual experiencing an event is r, Columns correspond to selected N's, rows to selected r's. Each entry is two integers, the low and high number bounds of the number of events at 95% confidence.

Computed numerically with a MatLab script, Bill Menke, September 20, 2012.

r\N	3	5	7	10	20	30	40	50	100
0.01	0 1	0 1	0 1	0 1	0 1	0 2	0 2	0 2	0 3
0.02	0 1	0 1	0 1	0 1	0 2	0 2	0 3	0 3	0 5
0.03	0 1	0 1	0 1	0 2	0 2	0 3	0 4	0 4	0 7
0.04	0 1	0 1	0 2	0 2	0 3	0 4	0 4	0 5	1 8
0.05	0 1	0 1	0 2	0 2	0 3	0 4	0 5	0 6	1 10
0.06	0 1	0 2	0 2	0 2	0 4	0 5	0 6	0 7	2 11
0.07	0 1	0 2	0 2	0 3	0 4	0 5	0 6	0 7	2 12
0.08	0 1	0 2	0 2	0 3	0 4	0 6	0 7	1 8	3 14
0.09	0 1	0 2	0 2	0 3	0 5	0 6	1 7	1 9	4 15
0.10	0 2	0 2	0 3	0 3	0 5	0 7	1 8	1 9	5 16
0.11	0 2	0 2	0 3	0 3	0 5	0 7	1 9	2 10	5 17
0.12	0 2	0 2	0 3	0 3	0 6	1 7	1 9	2 11	6 19
0.13	0 2	0 2	0 3	0 4	0 6	1 8	1 10	2 11	7 20
0.14	0 2	0 2	0 3	0 4	0 6	1 8	2 10	3 12	8 21
0.15	0 2	0 3	0 3	0 4	0 6	1 9	2 11	3 13	8 22
0.16	0 2	0 3	0 3	0 4	0 7	1 9	2 11	3 13	9 23
0.17	0 2	0 3	0 3	0 4	1 7	1 9	3 12	4 14	10 25
0.18	0 2	0 3	0 3	0 4	1 7	2 10	3 12	4 15	11 26
0.19	0 2	0 3	0 4	0 5	1 7	2 10	3 13	4 15	12 27
0.20	0 2	0 3	0 4	0 5	1 8	2 11	3 13	5 16	12 28
0.21	0 2	0 3	0 4	0 5	1 8	2 11	4 14	5 16	13 29
0.22	0 2	0 3	0 4	0 5	1 8	2 11	4 14	6 17	14 30
0.23	0 2	0 3	0 4	0 5	1 8	3 12	4 15	6 18	15 31
0.24	0 2	0 3	0 4	0 5	1 9	3 12	5 15	6 18	16 33
0.25	0 2	0 3	0 4	0 5	2 9	3 12	5 16	7 19	17 34
0.26	0 2	0 3	0 4	0 5	2 9	3 13	5 16	7 19	18 35
0.27	0 2	0 3	0 4	0 6	2 9	4 13	6 16	8 20	19 36
0.28	0 2	0 3	0 4	0 6	2 10	4 13	6 17	8 20	19 37
0.29	0 2	0 4	0 4	0 6	2 10	4 14	6 17	8 21	20 38
0.30	0 3	0 4	0 5	0 6	2 10	4 14	7 18	9 22	21 39
0.31	0 3	0 4	0 5	1 6	2 10	5 14	7 18	9 22	22 40
0.32	0 3	0 4	0 5	1 6	3 11	5 15	7 19	10 23	23 41
0.33	0 3	0 4	0 5	1 6	3 11	5 15	8 19	10 23	24 42
0.34	0 3	0 4	0 5	1 6	3 11	5 15	8 20	11 24	25 43
0.35	0 3	0 4	0 5	1 7	3 11	6 16	8 20	11 24	26 44
0.36	0 3	0 4	0 5	1 7	3 11	6 16	9 20	12 25	27 46
0.37	0 3	0 4	0 5	1 7	3 12	6 16	9 21	12 25	28 47
0.38	0 3	0 4	0 5	1 7	4 12	6 17	9 21	12 26	29 48
0.39	0 3	0 4	0 5	1 7	4 12	7 17	10 22	13 26	30 49
0.40	0 3	0 4	0 5	1 7	4 12	7 17	10 22	13 27	31 50
0.41	0 3	0 4	1 5	1 7	4 13	7 18	10 23	14 27	31 51
0.42	0 3	0 4	1 5	1 7	4 13	7 18	11 23	14 28	32 52
0.43	0 3	0 4	1 6	1 7	4 13	8 18	11 23	15 28	33 53
0.44	0 3	0 4	1 6	1 7	5 13	8 19	12 24	15 29	34 54
0.45	0 3	0 4	1 6	2 8	5 13	8 19	12 24	16 29	35 55
0.46	0 3	0 4	1 6	2 8	5 14	9 19	12 25	16 30	36 56
0.47	0 3	0 4	1 6	2 8	5 14	9 19	13 25	17 30	37 57
0.48	0 3	0 5	1 6	2 8	5 14	9 20	13 25	17 31	38 58
0.49	0 3	0 5	1 6	2 8	5 14	9 20	13 26	18 31	39 59
0.50	0 3	0 5	1 6	2 8	6 14	10 20	14 26	18 32	40 60
0.51	0 3	0 5	1 6	2 8	6 15	10 21	14 27	19 32	41 61
0.52	0 3	0 5	1 6	2 8	6 15	10 21	15 27	19 33	42 62

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0.53	0 3	1 5	1 6	2 8	6 15	11 21	15 27	20 33	43 63
0.54	0 3	1 5	1 6	2 8	6 15	11 21	15 28	20 34	44 64
0.55	0 3	1 5	1 6	2 8	7 15	11 22	16 28	21 34	45 65
0.56	0 3	1 5	1 6	3 9	7 15	11 22	16 28	21 35	46 66
0.57	0 3	1 5	1 6	3 9	7 16	12 22	17 29	22 35	47 67
0.58	0 3	1 5	2 6	3 9	7 16	12 23	17 29	22 36	48 68
0.59	0 3	1 5	2 6	3 9	7 16	12 23	17 30	23 36	49 69
0.60	0 3	1 5	2 7	3 9	8 16	13 23	18 30	23 37	50 69
0.61	0 3	1 5	2 7	3 9	8 16	13 23	18 30	24 37	51 70
0.62	0 3	1 5	2 7	3 9	8 16	13 24	19 31	24 38	52 71
0.63	0 3	1 5	2 7	3 9	8 17	14 24	19 31	25 38	53 72
0.64	0 3	1 5	2 7	3 9	9 17	14 24	20 31	25 38	54 73
0.65	0 3	1 5	2 7	3 9	9 17	14 24	20 32	26 39	56 74
0.66	0 3	1 5	2 7	4 9	9 17	15 25	20 32	26 39	57 75
0.67	0 3	1 5	2 7	4 9	9 17	15 25	21 32	27 40	58 76
0.68	0 3	1 5	2 7	4 9	9 17	15 25	21 33	27 40	59 77
0.69	0 3	1 5	2 7	4 9	10 18	16 25	22 33	28 41	60 78
0.70	0 3	1 5	2 7	4 10	10 18	16 26	22 33	28 41	61 79
0.71	1 3	1 5	3 7	4 10	10 18	16 26	23 34	29 42	62 80
0.72	1 3	2 5	3 7	4 10	10 18	17 26	23 34	30 42	63 81
0.73	1 3	2 5	3 7	4 10	11 18	17 26	24 34	30 42	64 81
0.74	1 3	2 5	3 7	5 10	11 18	17 27	24 35	31 43	65 82
0.75	1 3	2 5	3 7	5 10	11 18	18 27	24 35	31 43	66 83
0.76	1 3	2 5	3 7	5 10	11 19	18 27	25 35	32 44	67 84
0.77	1 3	2 5	3 7	5 10	12 19	18 27	25 36	32 44	69 85
0.78	1 3	2 5	3 7	5 10	12 19	19 28	26 36	33 44	70 86
0.79	1 3	2 5	3 7	5 10	12 19	19 28	26 36	34 45	71 87
0.80	1 3	2 5	3 7	5 10	12 19	19 28	27 37	34 45	72 88
0.81	1 3	2 5	3 7	5 10	13 19	20 28	27 37	35 46	73 88
0.82	1 3	2 5	4 7	6 10	13 19	20 28	28 37	35 46	74 89
0.83	1 3	2 5	4 7	6 10	13 19	21 29	28 37	36 46	75 90
0.84	1 3	2 5	4 7	6 10	13 20	21 29	29 38	37 47	77 91
0.85	1 3	2 5	4 7	6 10	14 20	21 29	29 38	37 47	78 92
0.86	1 3	3 5	4 7	6 10	14 20	22 29	30 38	38 47	79 92
0.87	1 3	3 5	4 7	6 10	14 20	22 29	30 39	39 48	80 93
0.88	1 3	3 5	4 7	7 10	14 20	23 29	31 39	39 48	81 94
0.89	1 3	3 5	4 7	7 10	15 20	23 30	31 39	40 48	83 95
0.90	1 3	3 5	4 7	7 10	15 20	23 30	32 39	41 49	84 95
0.91	2 3	3 5	5 7	7 10	15 20	24 30	33 39	41 49	85 96
0.92	2 3	3 5	5 7	7 10	16 20	24 30	33 40	42 49	86 97
0.93	2 3	3 5	5 7	7 10	16 20	25 30	34 40	43 50	88 98
0.94	2 3	3 5	5 7	8 10	16 20	25 30	34 40	43 50	89 98
0.95	2 3	4 5	5 7	8 10	17 20	26 30	35 40	44 50	90 99
0.96	2 3	4 5	5 7	8 10	17 20	26 30	36 40	45 50	92 99
0.97	2 3	4 5	6 7	8 10	18 20	27 30	36 40	46 50	93 100
0.98	2 3	4 5	6 7	9 10	18 20	28 30	37 40	47 50	95 100
0.99	2 3	4 5	6 7	9 10	19 20	28 30	38 40	48 50	97 100

```
% 95% confidence intervals for number of
% random hits in a group of N individuals
% with a true rate r

ra = [1:99]/100;
Na = [3, 5, 7, 10, 20, 30, 40, 50, 100];

fprintf('    ');
for N=Na
    fprintf(' %3d  ', N);
end
fprintf('\n');

for r=ra
fprintf('%.2f  ', r);
```

```
for N=Na
P = binocdf( [0:N]', N, r );
il = find(P>0.025,1)-1;
ir = find(P>0.975,1)-1;
fprintf('%d %d   ', il, ir);
end
fprintf('\n');
end
```